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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/810,801

Applicant(s)

GINZBURG ET AL.

Examiner

MATTHEW SAMS

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-8, 16, 18, 19, 21, 22, 28-33, 39, 41 and 42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-8, 16, 18, 19, 21, 22, 28-33, 39, 41 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This office action has been changed in response to the amendment filed on 7/18/2008.
2. Claims 1, 3, 4, 7, 8, 16, 18, 28, 29, 31, 39, 41 and 42 have been amended.

Response to Arguments

3. Applicant's arguments filed 7/18/2008 have been fully considered but they are not persuasive.
4. In response to the applicant's argument that Choi only discloses the use of RTS/CTS during peer-to-peer communications (Pages 10-11), the examiner respectfully disagrees.

Choi teaches using RTS/CTS (along with CSMA/CA) during the random access communication period where mobile devices communicate with the access point. (Choi Col. 4 lines 11-56) Therefore, Choi is analogous to applicants amendment to claims 1, 16, 28 and 39 regarding the "sending a hidden node report to one or more of the plurality of nodes to activate a hidden node protection mechanism for a particular node for avoiding a collision with a transmission from the hidden node when communicating with the access point." Further, the examiner is reading the transmission of a command to use RTS/CTS in conjunction with CSMA/CA during the random access periods and receiving the SIR required for a successful transmission (Col. 5 lines 32-60) as equating

to "sending a node report to one or more of the plurality of nodes to activate a hidden node protection mechanism")

5. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, allowing hidden node protection to be directed only to the affected nodes saves unaffected mobile devices from having the increased overhead of sending RTS/CTS messages.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3-8, 16, 18, 19, 21, 22, 28-33, 39, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayyagari in view of Choi (US-6,967,944).

Regarding claim 1, Ayyagari teaches a method of hidden node detection at an access point (Fig. 1 [20/24] "CCo") of a wireless communication system (Fig. 1 [30 & 32]) and a plurality of nodes (Fig. 1 [22, 26 & 28]), comprising:

broadcasting a first command to the plurality of nodes to start hidden node detection; (Col. 7 lines 11-21 and Fig. 3 [80])

broadcasting a second command to the plurality of nodes to send a nodes report to the access point; (Col. 7 lines 23-30 and Fig. 3 [88])

receiving a nodes report from each of a plurality of reporting nodes of the wireless communication system (Col. 7 line 62 through Col. 8 line 2 and Fig. 3 [92]) wherein a nodes report includes node communication related parameters of other nodes of the wireless communication system which are measured by a reporting node; (Col. 2 lines 10-13 "qualities of communications links between them", Col. 7 line 66 "Device Class", Col. 8 lines 21-26, Col. 8 lines 54-56 "quality/capacity of each link" and Col. 11 lines 51-58) and

detecting a hidden node by analyzing the measured node communication related parameters of nodes of the wireless communication system based on the nodes reports from the plurality of reporting nodes. (Fig. 10, Col. 8 lines 30-56 and Col. 10 lines 32-57)

Ayyagari differs from the claimed invention by not explicitly reciting sending a hidden node report to one or more of the plurality of nodes to activate a hidden node protection mechanism for a particular node for avoiding collision with a transmission from the hidden node when communicating with the access point.

In an analogous art, Choi teaches a system and method for increasing link capacity in concurrent wireless local area networks that includes sending a node report to one or more of the plurality of nodes to activate a hidden node protection mechanism

for a particular node for avoiding collision with a transmission from the hidden node when communicating with the access point. (Choi Col. 4 lines 11-56 and Col. 5 lines 9-67 note: the examiner is reading the transmission of a command to use RTS/CTS in conjunction with CSMA/CA during the random access periods and receiving the SIR required for a successful transmission as equating to "sending a node report to one or more of the plurality of nodes to activate a hidden node protection mechanism") At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the method of Ayyagari after modifying it to incorporate the activation of hidden node protection on a node when communicating with an access point of Choi. One of ordinary skill in the art would have been motivated to do this since it enables hidden node protection to be directed only to the affected nodes.

Regarding claim 3, Ayyagari in view of Choi teaches the limitations of claim 1 above, detecting an unreported node (Ayyagari Page 1 [0010]) and activating a hidden node protection on a reporting node. (Choi Col. 4 lines 11-56, specifically lines 43-56 and Col. 5 lines 9-31)

Regarding claim 4, Ayyagari in view of Choi teaches detecting a signal strength below or equal to a threshold; (Choi Col. 5 line 4 through Col. 6 line 3) and

sending a command to activate a hidden node protection mechanism on a reporting node. (Ayyagari Col. 2 lines 25-28, Choi Col. 4 lines 43-56 and Col. 5 lines 17-28)

Regarding claim 5, Ayyagari in view of Choi teaches wherein sending a command to activate a hidden node protection mechanism (Choi Col. 4 lines 43-56 and Col. 5 lines 17-28) comprises:

sending a command to enable a request-to-send\clear-to-send (RTS\CTS) control mechanism. (Choi Col. 4 lines 43-56)

Regarding claim 6, Ayyagari in view of Choi teaches wherein sending a command to activate a hidden node protection mechanism (Choi Col. 4 lines 43-56 and Col. 5 lines 17-28) comprises:

sending a subset of power adjustment commands to a subset of nodes based on the nodes report. (Choi Col. 6 line 57 through Col. 7 line 3)

Regarding claim 7, Ayyagari in view of Choi teaches wherein sending a command to activate a hidden node protection mechanism (Choi Col. 4 lines 43-56 and Col. 5 lines 17-28) comprises:

sending a command to enable a request-to-send\clear-to-send (RTS\CTS) control mechanism. (Choi Col. 4 lines 43-56)

Regarding claim 8, Ayyagari in view of Choi teaches wherein sending a command to activate a hidden node protection mechanism (Choi Col. 4 lines 43-56 and Col. 5 lines 17-28) comprises:

sending a subset of power adjustment commands to a subset of nodes based on the nodes report. (Choi Col. 5 lines 4-28 and Col. 6 lines 57 through Col. 7 line 3)

Regarding claim 16, Ayyagari teaches an apparatus (Fig. 1 [20/24] "CCo") in a wireless communication system (Fig. 1 [30 & 32]) including at least the apparatus and a plurality of nodes (Fig. 1 [20, 22, 26 & 28]), comprising:

a transmitter to broadcast a command to the plurality of nodes to start hidden node detection (Col. 7 lines 11-21 and Fig. 3 [80]) and to broadcast a second command to the plurality of nodes to send a nodes report to the access point; (Col. 7 lines 23-30 and Fig. 3 [88])

a receiver to receive a nodes report from each of a plurality of reporting nodes of the wireless communication system (Col. 7 line 62 through Col. 8 line 2 and Fig. 3 [92]), wherein a nodes report includes one or more node communication related parameters of other nodes of the wireless communication system which are measured by a reporting node; (Col. 2 lines 10-13 "qualities of communications links between them", Col. 7 line 66 "Device Class", Col. 8 lines 21-26, Col. 8 lines 54-56 "quality/capacity of each link" and Col. 11 lines 51-58) and

a hidden node detector to detect a hidden node in the wireless communication system by detection of an unreported node in at least one nodes report from the plurality of reporting nodes. (Fig. 10, Col. 8 lines 30-56 and Col. 10 lines 32-57)

Ayyagari differs from the claimed invention by not explicitly reciting broadcasting a command to the plurality of nodes to start a hidden node detection and sending a hidden node report to one or more of the plurality of nodes to activate a hidden node protection mechanism for a particular node for avoiding collision with a transmission from the hidden node when communicating with the access point.

In an analogous art, Choi teaches a system and method for increasing link capacity in concurrent wireless local area networks that includes activating a hidden node protection (Col. 4 lines 43-56 and Col. 5 lines 9-31) and sending a node report to one or more of the plurality of nodes to activate a hidden node protection mechanism for a particular node for avoiding collision with a transmission from the hidden node when communicating with the access point. (Choi Col. 4 lines 11-56 and Col. 5 lines 9-67 note: the examiner is reading the transmission of a command to use RTS/CTS in conjunction with CSMA/CA during the random access periods and receiving the SIR required for a successful transmission as equating to "sending a node report to one or more of the plurality of nodes to activate a hidden node protection mechanism") At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the method of Ayyagari after modifying it to incorporate the activation of hidden node protection on a node when communicating with an access point of Choi. One of ordinary skill in the art would have been motivated to do this since it enables hidden node protection to be directed only to the affected nodes.

Regarding claim 18, Ayyagari in view of Choi teaches a controller to activate a hidden node protection mechanism on a reporting node if a hidden node is detected. (Choi Col. 4 lines 43-56 and Col. 5 line 9-28)

Regarding claim 19, Ayyagari in view of Choi teaches wherein the one or more node communication related parameters includes a signal strength indicator and the hidden node detector is able to detect a hidden node by analyzing the signal strength indicator. (Choi Col. 5 line 4 through Col. 6 line 23)

Regarding claim 21, the limitations of claim 21 are rejected as being the same reason set forth above in claim 5.

Regarding claim 22, the limitations of claim 22 are rejected as being the same reason set forth above in claim 6.

Regarding claim 28, Ayyagari teaches a wireless communication system (Fig. 1) comprising:

a node (Fig. 1 [22, 26 & 28] to generate a nodes report (Col. 7 line 62 through Col. 8 line 2 and Fig. 3 [92]) of a plurality of other nodes of the wireless communication system wherein the nodes report includes one or more communication related parameters of said plurality of nodes whose signals are received and measured at the station; (Col. 2 lines 10-13 "qualities of communications links between them", Col. 7 line 66 "Device Class", Col. 8 lines 21-26, Col. 8 lines 54-56 "quality/capacity of each link" and Col. 11 lines 51-58) and

an access point (Fig. 1 [20/24]) to broadcast a first command to the node to start a hidden node detection (Col. 7 lines 11-21 and Fig. 3 [80]), to broadcast a second command to the node to send the nodes report to the access point (Col. 7 lines 23-30 and Fig. 3 [88]), and to detect a hidden node in the wireless communication system by detection of an unreported node in at least one node report of the plurality of node reports received from one or more nodes of the wireless communication system. (Fig. 10, Col. 8 lines 30-56 and Col. 10 lines 32-57)

Ayyagari differs from the claimed invention by not explicitly reciting sending a hidden node report to one or more of the plurality of nodes to activate a hidden node

protection mechanism for a particular node for avoiding collision with a transmission from the hidden node when communicating with the access point.

In an analogous art, Choi teaches a system and method for increasing link capacity in concurrent wireless local area networks that includes sending a node report to one or more of the plurality of nodes to activate a hidden node protection mechanism for a particular node for avoiding collision with a transmission from the hidden node when communicating with the access point. (Choi Col. 4 lines 11-56 and Col. 5 lines 9-67 note: the examiner is reading the transmission of a command to use RTS/CTS in conjunction with CSMA/CA during the random access periods and receiving the SIR required for a successful transmission as equating to "sending a node report to one or more of the plurality of nodes to activate a hidden node protection mechanism") At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the method of Ayyagari after modifying it to incorporate the activation of hidden node protection on a node when communicating with an access point of Choi. One of ordinary skill in the art would have been motivated to do this since it enables hidden node protection to be directed only to the affected nodes.

Regarding claim 29, Ayyagari in view of Choi teaches the access point is able to activate a hidden node protection mechanism at the node to protect the node from transmissions of the hidden node. (Choi Col. 4 lines 43-56 and Col. 5 line 9-28)

Regarding claim 30, Ayyagari in view of Choi teaches the communication related parameters comprises a signal strength indicator of the plurality of nodes and the

access point is able to detect a hidden node by analyzing said signal strength indicator.
(Choi Col. 5 line 4 through Col. 6 line 23)

Regarding claim 31, Ayyagari in view of Choi teaches wherein the access point is able to detect a hidden node by detection of an unreported node at the nodes report.
(Ayyagari Col. 2 lines 25-28, Col. 8 lines 36-56 and Choi Col. 5 lines 4-60)

Regarding claim 32, the limitations of claim 32 are rejected as being the same reason set forth above in claims 5 & 7.

Regarding claim 33, the limitations of claim 33 are rejected as being the same reason set forth above in claim 8.

Regarding claim 39, the limitations of claim 39 are rejected as being the same reasons as those set forth above in claim 1.

Regarding claim 41, the limitations of claim 41 are rejected as being the same reason set forth above in claim 3.

Regarding claim 42, the limitations of claim 42 are rejected as being the same reason set forth above in claim 4.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW SAMS whose telephone number is (571)272-8099. The examiner can normally be reached on M-F 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MCS
10/8/2008

/Lester Kincaid/
Supervisory Patent Examiner, Art Unit 2617